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<u>REMARKS</u>

In view of the nature of the sophisticated technologies related to present invention and the prior art, the Applicants believe that the following supplemental remarks will further assist the Examiner in more fully understanding the differences between the present invention as claimed and the cited prior art. Entry of this Supplemental Response is respectfully requested.

The Applicants submit that there are <u>conceptual differences</u> between the problem solving approaches in accordance with the present invention and the teachings of the Jonas and Arango patents. The present invention focuses on a user or host (computer) manageable telecommunications concept (an "out of network" telecommunications solution), which arises from the ubiquitous co-existence of accesses to packet switching as well as to line switching networks. But it is not restricted to solely the POP manageable telecommunications concept.

However, the teachings of the Jonas and Arango Patents are restricted to solely POP manageable telecommunications concepts(with their "within network" telecommunications solution).

In essence, the teachings of the Arango and Janos patents and that of the present invention deal with significantly different services achieved by significantly different technical procedures/devices. While each strives for a smart usage of the ubiquitous co-existence of the accesses to packet as well as to line switching networks, they significantly differ with respect to the qualities of services provided by implementations of the

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respective inventions and the technical simplicity or technical complexity allowed for or required by their application environments (in particular the environment provided by POPs versus the environment provided by users/host, the latter environment not at all considered by Jonas and Arango).

In accordance with the present invention much larger communities are able to receive better services than those provided in accordance with the teachings of the Arango and Jonas patents, and these better services utilize very much simpler procedures and technical devices.

The Applicants submit that the teachings of the Arango and Jonas patents are restricted to:

1. data packet transmissions,

2. computer-computer communications,

3. POPs or signaling or routing tables or ports.

On the other hand, the claimed invention in accordance with the present application is not subject to any one of these restrictions, which exclude numerous telecommunications situations from being candidates for the application of the Arango and Jonas patent teachings.

1. data packet transmissions

The Jonas Patent from the outset focuses on "data packet" transmissions (see the first line of its ABSTRACT: "A method and system for routing and transmitting data packets over ..."). This is reconfirmed in its SUMMARY OF THE INVENTION in Column 1, Line 35: "The present invention is directed to a method and system for routing data packets between host computers ...". This dedication to exclusively data packet transmission continues to the end of the specification and its Claim 1 ("A

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method for transmission of data packets ...") and its Claim 10 ("A method for transmitting data packets ...".

Also the Arango Patent from the outset focuses on "packet communication (see the fourth line of its ABSTRACT: "Packets are communicated on ..."). This is reconfirmed in its SUMMARY OF THE INVENTION in Column 6, Line 66-67: "... transmitting a bitstream that is organized into packets." and in its DETAILED DESCRIPTION OF THE INVENTION in Column 15-24: "The host 210 may then transmit packets .... The access server 242 then routes the packets to the host 250.". And this exclusive "packet-dedication" holds on until the end of the Arango Patent and all its claims, which explicitly express in virtually any one of their paragraphs, that the information is being communicated in packetized form exclusively.

Throughout both the Arango and Jonas patents, there is not a single hint to a possibility, that digitalization /reanalogization, and in the case of digital information packetizing /depacketizing it, may be saved completely or partially by using a line-switched channel for its transmission. These savings do not only allow for a higher "pay load" on the line-switched channel: They can also be used for avoiding the loss of quality inevitably encountered when applying "lossy" data compression/decompression techniques on the information to be communicated, for example in order to get a 64 Kbit/s audio bitstream in packetized form through a 64 Kbit/s channel, or regenerating the original "analog signalstream" from a digital bitstream (which was derived by digitalization of a telephone signalstream) to be communicated, even completely avoiding

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digitalization of an analog signalstream, if the line-switched channel to be used is an analog telephone channel.

In accordance with the present invention these options of service improvement are provided by clearly distinguishing between "packet" transmission on the packet-switching network and "data" transmission on the line-switched network. In the latter case "data" may comprise digital packetized data, digital non-packetized data and analog (non-packetized) data. The present invention does not restrict this generality, i.e., restricting "data" to be packetized or at least to be digital.

Thus, both the Arango and Jonas patent teachings are restricted to the <u>transmission of packetized bitstreams only</u>, while the claimed present invention allows also for the <u>transmission of non-packetized bitstreams and analog signalstreams, and even all three kinds of data at the same time</u>.

2.<u>"computer-computer communications"</u>

The Jonas Patent from the outset is restricted to "computer-computer communications"as opposed to "human-human communications" or "man-machine communications" concerning its packet transmissions (see the 1st to 4th line of its ABSTRACT: "... transmitting data packets … from a source <u>computer</u> ... to a ... destination <u>computer</u> …"). This is made quite explicit in its SUMMARY OF THE INVENTION right at its beginning ("The object of the present invention is to provide a method and system for the automatic bypass for <u>hosts</u> communicating across ...."). And this holds on until the end of the Jonas Patent and its claim 1, Column 6, Line 28-30 ("… transmission of data packets <u>from</u> a source computer … to a <u>destination computer</u> …").

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Throughout the whole Jonas Patent there is not a single hint as to the question, whether one or both of the communicating hosts 1 and 2 might be replaced by human beings and their network interfacing devices, such as, for example, analog or ISDN telephone sets, which both cannot be considered as being computers or hosts or alike, because they are unable to execute the sophisticated computer communication protocol that, e.g., the Router 20 requires for its communication with Host 1.

Also the Arango Patent from the outset is restricted to "computer-computer communications" concerning its packet transmissions (see the 1st and 2nd line of its ABSTRACT: "…an access link 212 to a first host 210 …" and in the middle of the ABSTRACT: "The first host 210 can generate a packet …. establish a continuous bandwidth session with a second host 250."). This is made quite explicit in the final part of its SUMMARY OF THE INVENTION, when wrapping up its preceding elaborations, Column 8, Lines 59-65 ("In short, an access point architecture is provided for enabling time-sensitive communications between hosts to be achieved, end-to-end, within a predictable time interval. The access point, of a host that desires to establish a time-sensitive communication with a second host …."). And this holds on until the end of the Arango Patent and its claim 1, Column 20, Line 40-42 ("…plurality of hosts including a source host and a destination host between packets are to be transmitted …").

Throughout the whole Arango Patent there is not a single hint as to the question, whether one or both of the communicating hosts 210 and 250 might be replaced by human beings and their network interfacing devices, such as for

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example analog or digital telephone sets – which both cannot be viewed as being computers or hosts or the like, because they are unable to execute the sophisticated computer communication protocol that, e.g., the Access Point 220 requires for its communication with its Host 210.

On the other hand, in accordance with the present invention the communicating partners are human beings, which communicate by means of the switches of Claim 1, and their very simple network interfacing devices, such as nothing else but analog or ISDN telephone sets – which both cannot be understood as being computers or hosts or the like, because they are unable to execute any sophistical communication protocol, and still the switch is able to communicate with them.

Thus, both the Arango and Jonas patents are restricted to teaching computer-computer communications only, while the present claimed invention allows for communicating partners to be human beings with the simplest thinkable network interfacing devices, such as analog or digital telephone sets – which definitely are not computers or hosts or the like, i.e., allows for man-machine communications as well as for man-man communications (without computer assistance between switches and end users).

3. POP applicability

First, it should be noted that the descriptions of the inventions of both Arango and Jonas (and their claims) use the term "router" in dozens of places, because these inventions basically provide extensions to router environments. This is clearly shown by the Figures on the cover pages of both patents. In the Jonas Patent there is shown routers 20 and 21 and it

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explicitly describes the add-on functionality provided for them in the ABSTRACT. In the Arango Patent there is shown an add-on functionality built around the "ordinary routers" 224 and 244.

On the other hand the switches in accordance with the present invention are not router extensions and are completely independent from any router.

Nevertheless, both the Arango and Jonas patents do not state explicitly that these routers, the environments of which are being extended by their inventions, belong to only a specific one of the three established router kinds (CPE routers, POP routers and WAN routers) thus inviting misunderstandings about to what router environments their inventions would be applicable. It is shown below, that both the Arango and Jonas patents have the same single kind of router environments in mind, namely the environment of POP routers.

Further, the Applicants submit that both the Arango and Jonas patents are vague about restrictions concerning a) the signaling, as well as b) the implementation of the switching functionality, as well as c) the reason for switching the data transmission back and forth (between the packet switching network and the line switching network).

Concerning the "signaling" restrictions, both the Arango and Jonas patents insist in using mark-ups of the packets to be transmitted over the one or over the other network, while the present invention does not impose on its switch this specific signaling scheme: Because, this restriction excludes taking into account communications activities, which are not based on the exchange of packetized data and its computer communications protocol.

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Thus, their signaling restriction is a huge disadvantage of in both the Arango and Jonas patents, as compared to the present invention, due to this restriction's implied exclusion of both their inventions from supporting conventional analog or ISDN telephone sets when using the POTS resp. the ISDN, i.e. massively restricting their range of applicability.

Concerning the "switching implementation" restrictions both the Arango and Jonas patents insist in using routing tables and modifying their entries in order to implement the switching functionality, while the present claimed invention does not impose on its switch this particular implementation. As a matter of fact, routing tables are meaningful only for transmitting packetized data, while the switch in accordance with the present invention also handles non-packetized bitstreams and even analog signalstreams.

Again, their switching implementation restriction is a huge disadvantage of both the Arango and Jonas patents, as compared to the present claimed invention, due to this restriction's implied exclusion of both the Arango and Jonas teachings from supporting conventional analog or ISDN telephone sets when using the POTS or the ISDN, i.e. massively restricting their range of applicability.

Concerning the "reason for switching" restrictions, the Arango Patent has a clear position: It does not allow this switching to take place within applications but only between applications (represented by port numbers), while the present claimed invention does not impose on its switch this "not within an application" switching policy, but entitles it to switching

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at any appropriate point in time, i.e., also within any application.

This switching restriction is a huge disadvantage of the Arango Patent, as compared to the present claimed invention because it prevents its invention from supporting the probably most important network application, namely telephone calls.

To put it quite clearly and once again, what these "restrictions" a), b) and c) of both the Arango and Jonas patents are saying is that neither consider nor anticipate any one of those telecommunications scenarios within the scope of the present claimed invention, in which its switch communicates <u>directly</u> (i.e. without a computer supporting this communication), on its end system side with a terminal device as simple as an analog or ISDN telephone set, i.e. with a "sub computer intelligence" device so to speak.

In essence, the Applicants submit that the present claimed invention is applicable to all three kinds of router environments, while the inventions taught by Jonas and Arango are applicable solely to the POP router environment.
In other words, the applicability of the Arango and Jonas teachings is restricted exclusively to the <u>POP router environment</u>, whereas the applicability of the present claimed invention includes <u>also the CPE environment</u> (comprising a CPE router or not) <u>and the WAN router environment</u>

The present claimed invention does not allow for any restriction as where its switches may be positioned, within a network (and where therein) or outsides of it. The switches in accordance with the present invention <u>may augment the</u>

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functionalities of all three kinds of the above outlined environments by their add-on functionalities

The Jonas switch is placed exclusively in the POP router environment. This follows mandatorily from its claims 1 and 10 both of them postulating the very specific restrictions, that "... said first router and said second router being permanently coupled to the packet-switched network via a packet-switched connection …." and containing several explicit references to these POP routers in both these claims, such as for example:"...(c) detecting said bypass network data packet designation at said first router,(d) ... of said second router,(e) ... between said first router and said second router by ...(f) ... router ... router ...,(g) ... router ..."

These features assumed by the Jonas Patent, primarily the first one of the two above quotations, make it applicable only to the POP router environment, because: No CPE router or WAN router is permanently coupled to the packet-switched network but occasionally de-/recoupled from/to the packet-switched network as considered appropriate by the manager of the CPE resp. of the WAN. As opposed to CPE routers and WAN routers only POP routers must by any means remain permanently coupled to the packet-switched network, otherwise the packet-switched network would not be accessible for those thousands or ten thousands of its users in the region serviced by this POP, and no manager whatsoever may afford such down times of a POP. In addition, neither CPE routers nor WAN routers are coupled to the packet-switched network via packet-switched connections. For these two kinds of routers this coupling is performed simply by data links between them and the adjacent routers of the packet-

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switched network. Only POP routers are permanently coupled to the packet-switched network (more precisely: to its service provider) via a <u>packet-switched connection</u>, because of the inevitably permanent needs (of the service provider) of being able to identify the users granted access to this (his) POP and the inherent accounting/billing/invoicing requirements.

Accordingly, given the explicit description of the placement of its switch, there is absolutely no hint in the Jonas Patent, to have POP routers set up telephone line connections between them, if required – also to CPE routers or WAN routers.

For WAN routers the correctness of this statement follows quite obviously from the wordings of all its claims and in particular from Fig. 1, which all indicate that the routers referred to would <u>provide coupling mechanisms between hosts and a packet-switched network</u>, i.e. that these routers are not internal to the packet-switched WAN, as required by a WAN router.

For CPE routers the proof of the correctness of the above statement requires carefully screening all the wordings of the Jonas Patent from Column 3, Line 25 on (The section preceding this Line, which addresses the "Background of the Present Invention", would not be suited for such disclosures, due to the logical set-up of the Jonas Patent).

Indeed, in the remainder of the Jonas patent, there are two somehow blurring but/because very abstract wordings, which possibly might be regarded, at a first glance, as being of relevance. But at a second glance this turns out to be wrong:

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Because, both of them are definitively not applicable to CPE routers.

Without distinguishing between the three kinds of routers both these phrases are only general and totally vague in nature:"..., alternate configurations are also available, such as one or more of the <u>hosts being directly connected to the Internet as a router or gateway computer</u>." (Column 4, Lines 11 and 12) and "..., both the source and destination <u>routers 20 and 21 may be physically the same computer as the source host 1 and the destination host 2</u>, respectively." (Column 6, Lines 18-20) when talking about this "tight collocation between host and router", which might potentially imply that the routers 20 and / or 21 are CPE routers.

These two quotations definitively do not refer to CPE routers, and therefore consider 20 and 21 to be POP routers. Consequently, after devaluating these two quotations for the question under consideration, the Jonas Patent would not contain any faintest hint that its invention is applicable also to the CPE environment.

The Applicants submit that the Jonas Patent does not disclose any information concerning the establishment of this "tight collocation of host and router" referred to by these two quotations, i.e., concerning the changes/differences required in a router's functionality and interface towards the Internet either when physically shifting it from the POP environment (i.e. shifting 20 or 21) into an adjacent CPE environment (as assumedly suggested for these two quotations), or introducing an additional (to 20, 21) router in this adjacent CPE environment (due to the same assumption about the meaning of these

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quotations). There are very good reasons why the Jonas patent does not disclosure any such information. The Jonas router's interface towards the Internet and even more its functionality must be changed totally, namely, such as to make its interface towards ithe indispensable POP router look like a CPE device's interface, which probably always would be a major change, and functionality meet the requirements of a CPE router, which always are totally different from those of a POP router. In both cases these changes / differences would be dramatic and therefore can not be interpreted as being part of the two wordings quoted above.

The only information the Jonas Patent discloses referring to this kind of "tight collocations of hosts and routers" is provided by the Jonas patent's claim 7, which reads as follows: "The method for the transmission of data packets of <u>claim 1</u> wherein <u>said first router comprises said source computer</u>, said transmission from said source computer to said router comprising an interprocess communication <u>within said router.</u>" Here, said first router (of claim 7) is a POP router (because of claim 1 as explained above), and comprises the source computer (located within this POP router). Thus, for this configuration, the above two quotations do fullyapply.

Accordingly, concerning "tight collocations", the two above quoted wordings and claim 7 of the Jonas Patent disclose solely the "tight collocation of a host and a <u>POP router</u>", but by no means not the "tight collocation of a host and a <u>CPE router or switch</u>".

The Applicants therefore submit that there is not the faintest hint in the Jonas Patent to have POP routers 20 and

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or 21 set up telephone line connections between them, if required, also to CPE environments.

The Arango patent switch may be placed exclusively in the POP router environment. This follows mandatorily from its claim1, Column 20, Line 50: "... each of said access points being a switching point ..." in conjunction with the first line of the CONCLUSION, Column 19, Lines 66-67: "An access point is provided with a first link to the Internet backbone ..." Because, together with the 5th/6th line of the SUMMARY OF THE INVENTION, Column 6/7, last/first Line: "The Internet comprises a number of backbone networks, access points and subnetworks....", this explicitly states that the switching router of the Arango Patent is located in what it calls "access point" and the latter being a POP. This is fully confirmed by Fig. 6 and the final part of the SUMMARY OF THE INVENTION, Column 8, Lines 59: "In short, an access point architecture is provided for ..".

Accordingly, there is absolutely no hint in the Arango patent, which indicates the anticipation of the applicability of its invention, namely, to have the POP routers (alias access points 220 and 240) set up telephone line connections between them, if required, also to the CPE routers or WAN routers.

For WAN routers the correctness of this statement follows quite obviously from the wordings of all its claims and in particular from Fig. 6 and Fig. 7, which all indicate that the routers referred to would provide coupling mechanisms between hosts 210 / 250 and a packet-switched WAN 230, i.e., that these routers are not internal to the packet-switched WAN 230, as required by a WAN router. For CPE routers the proof of the

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correctness of the above statement requires careful screening
all the wordings of the Arango Patent from Column 6, Line 61 on.
This screening leads to the result that, given the impossibility
of replacing a POP router environment by a CPE environment in a
patent without addressing this complicated fact explicitly, as
shown in the preceding discussion of the Jonas patent, there is
no indication that the Arango Patent would hint at the
applicability of its invention to CPE environments (with all
likelihood due to the same technical difficulties inevitably
encountered by such hints as explained with the Jonas Patent).

In particular Fig. 7, which comes closest to having the
Arango switch leave the POP router environment in favor of the
CPE environment, did not make it as undeniably proven by two
statements of the Arango Patent: Firstly, this figure shows
clearly that the access points 320 and 240 communicate directly
to the Internet backbone, which is the prerogative of broadband
routers only, i.e. of POP routers, and secondly, the description
of Fig. 7 in Column 14 (from Line 45 on) leaves no doubt about
these two instances being "access points" as defined in Column
7, first Line, i.e. they are "POP router environments".

The Applicants therefore submit that there is not the
faintest hint in the Arango Patent to have POP routers 20 and/or
21 set up telephone line connections between them, if required
also to CPE environments.

Accordingly, the Applicants submit that the present claimed
invention is applicable to three kinds of environments, those of
POP routers, those of WAN routers and those of CPEs (comprising
a router or not), while the teachings of Arango and Jonas are

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applicable to POP router environments only and do not anticipate extending their applicability to the other two environments.

While the present claimed invention is not subject to any of the four restrictions referenced above (POP, a), b) or c)), the Jonas patent is subject to the POP, a) and b) restrictions, and the Arango patent is subject to the POP, a), b) and c) restrictions. However, the switch in accordance with the present claimed invention may be place in some CPE environment (comprising a router or not), in the POP router environment or in the WAN router environment.

Respectfully submitted,

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